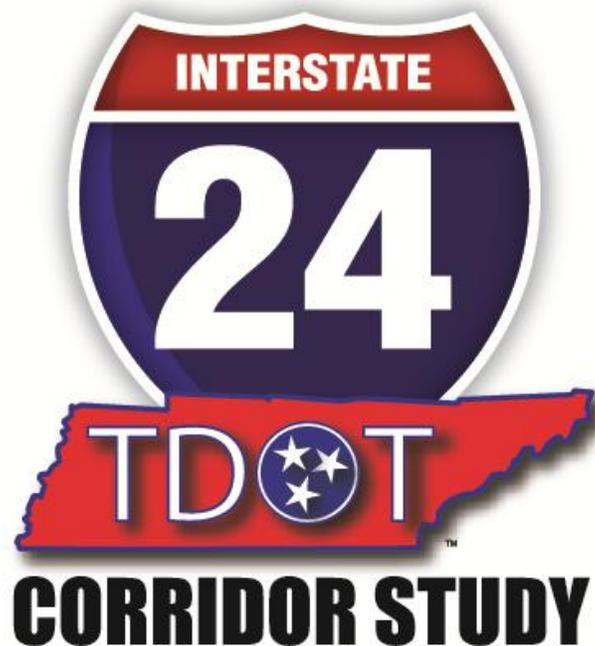


Technical Memorandum 8
Existing
Geometric Conditions Evaluation



March 2013

Technical Memorandum 8

Existing

Geometric Conditions Evaluation



This document is posted at:
<http://www.tdot.state.tn.us/i24/>

This document was prepared by Atkins for the
Tennessee Department of Transportation
Project No. 99108-1154-04

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1.0 Introduction

1.1 Corridor Location and Overview

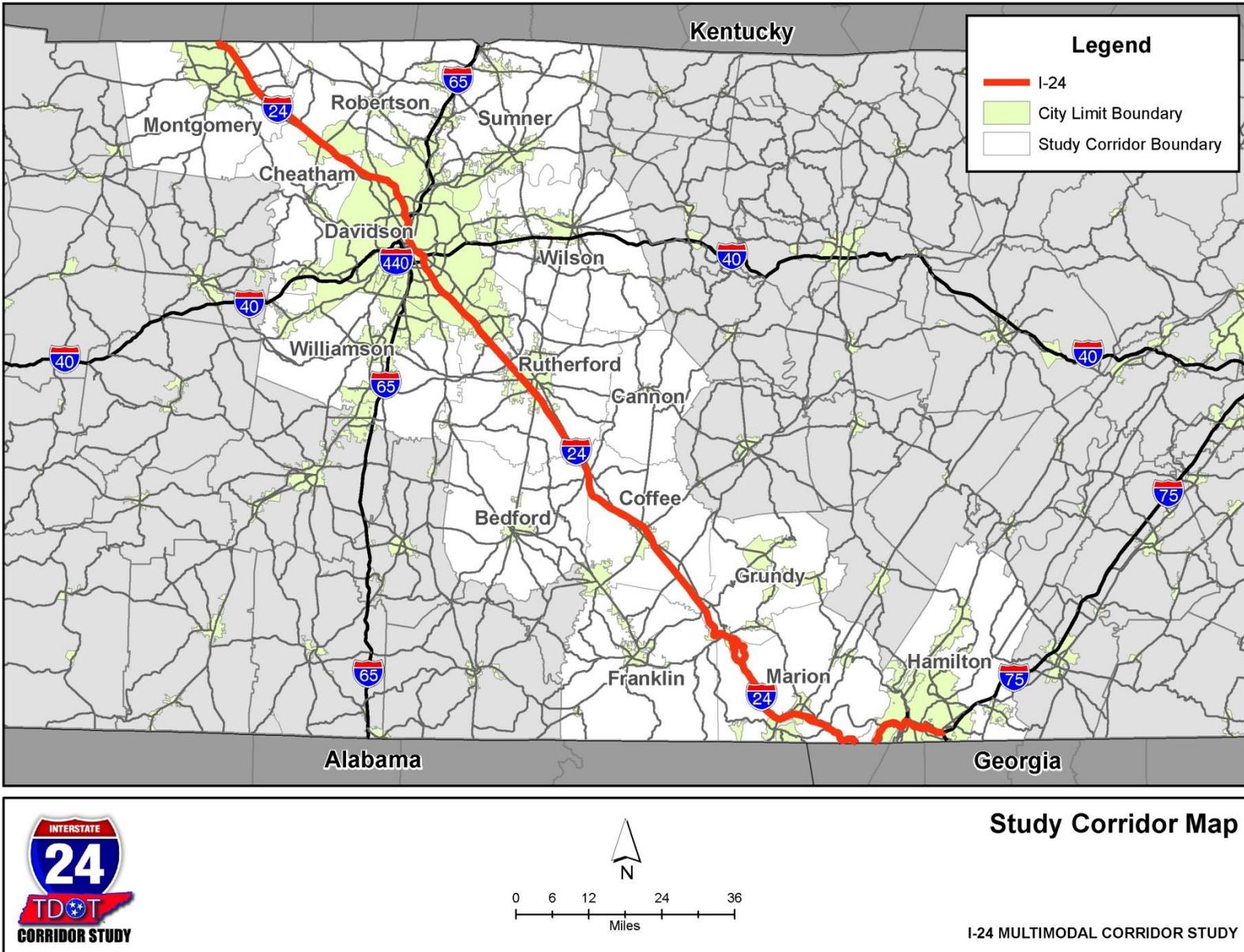
The purpose of the I-24 Multimodal Corridor Study is to examine potential multimodal transportation improvements that would address existing and emerging transportation system issues associated with this strategic corridor through central Tennessee connecting the Clarksville, Nashville and Chattanooga urban areas. The corridor extends from the Kentucky border to where it meets I-75 in Hamilton County, a distance of approximately 185 miles (refer to Figure 1.1).

The analysis of corridor needs will go through a structured process of characterizing existing and projected corridor conditions, describing the purpose and need for corridor improvements, defining a set of performance measures against which to evaluate improvement options, and evaluating potential corridor improvements against these performance measures to develop a set of recommended improvements.

1.2 Purpose of This Document in the Study Process

The purpose of this document is to identify all locations along I-24 that do not meet the current standards for several geometric factors that include: cross-sectional elements, vertical geometry, horizontal geometry, bridge conditions, pavement conditions, and interchange configuration. This document also includes an analysis of potential rockslide locations. This analysis will be used later in the I-24 Multimodal Corridor Study when alternative improvement strategies and scenarios are developed and evaluated.

Figure 1.1: Study Corridor Map



2.0 Evaluation of Existing Geometric Conditions

2.1 Data Compilation

Deficiencies for the I-24 corridor were identified by comparing the existing roadway to the current applicable TDOT and AASHTO design standards. Data used for the evaluation was compiled through a variety of sources including:

- TDOT- Pavement Management database
- TDOT- Inventory of Structurally Deficient State Maintained Bridges
- TDOT- Bridge Inventory and Appraisal Reports
- TDOT- Tennessee Roadway Information Management System (TRIMS) database
- Aerial Photography (supplied by TDOT)
- Field reconnaissance by ATKINS staff
- AASHTO - A Policy on Geometric Design of Highways and Streets 2011
- AASHTO - Roadside Design Guide
- TDOT - Roadway Design Standards for Freeways

The results of the existing geometric conditions evaluation along I-24 were summarized by segments for ease of identification for the reader and for data management purposes. The I-24 corridor was divided up into 36 segments based on several guidelines. Segment boundaries were mandatory at county lines, state lines, TDOT Region boundaries and at urban boundaries. Further segmentation of the I-24 corridor was based on optional boundaries such as city limits and major interchanges. It should be noted that the section of I-24 in Georgia was not included in this evaluation. Please refer to Figures 2.1 through 2.9 for a display of the I-24 segments and refer to Appendix A for a detailed definition of each I-24 segment. Also, please refer to Appendix B of this technical memorandum for maps that show the location of each exit on I-24.

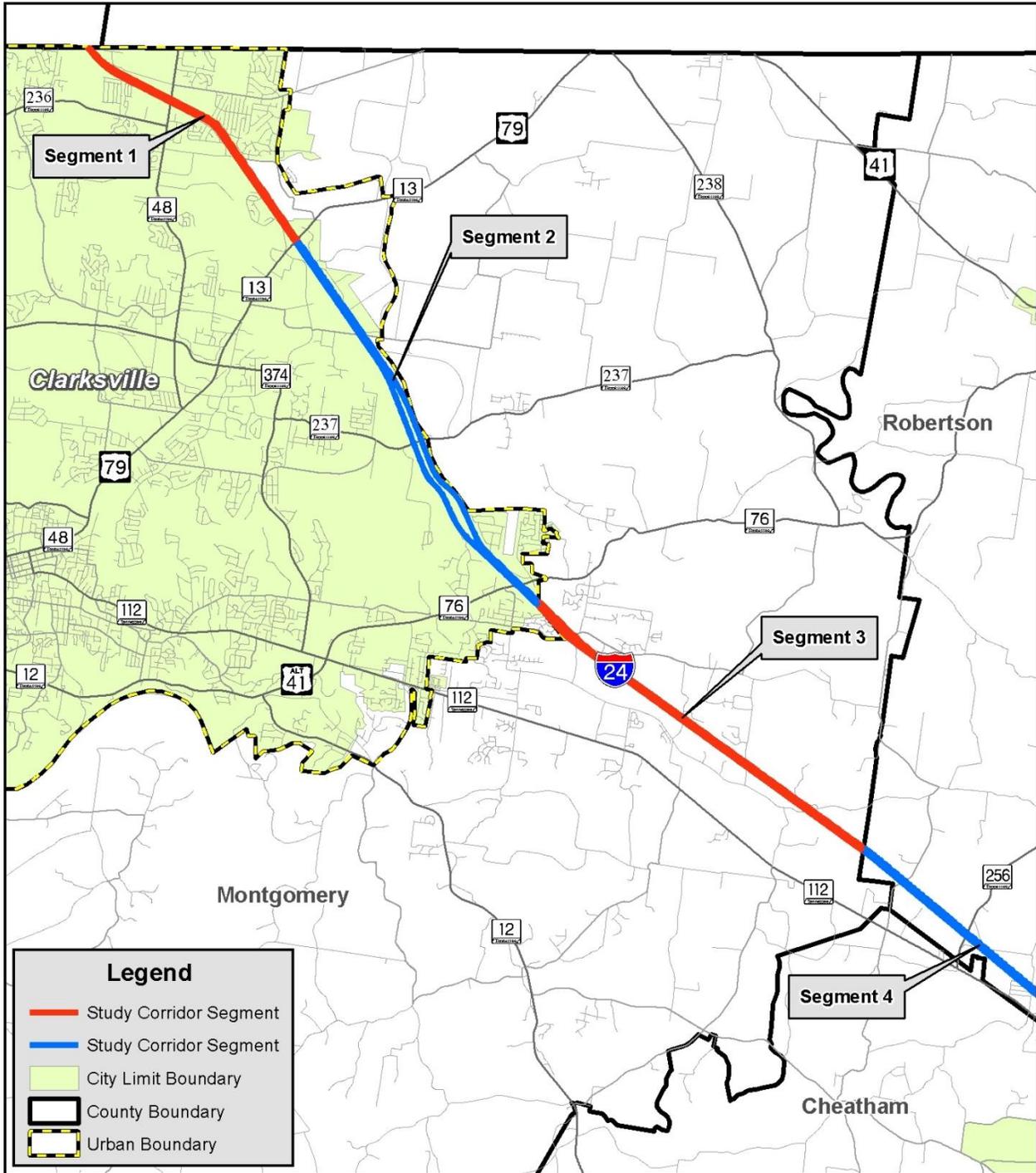
2.2 Cross-Sectional Elements

The TRIMS database was used to examine the basic cross-sectional elements on I-24 such as lane widths, shoulder widths and median widths and then the study team determined if these elements met the current design standards as outlined in TDOT's standard drawings. Field reconnaissance was also utilized to identify clear zone issues that could possibly warrant correction. Please refer to Table 2.1 for a summary of the cross-sectional element evaluation by I-24 segment.

2.3 Vertical Geometry

The TRIMS database was used to obtain vertical grade data on I-24 and the study team determined if each section of I-24 met the current design allowable based on terrain type. Grades were also evaluated to determine if they were of sufficient magnitude and length to indicate the need for a truck climbing lane. Existing truck climbing lanes were evaluated in the field to determine if extending the existing lanes would be beneficial. The vertical grade data obtained from the TRIMS database was also confirmed in the field as part of the existing conditions geometric evaluation.

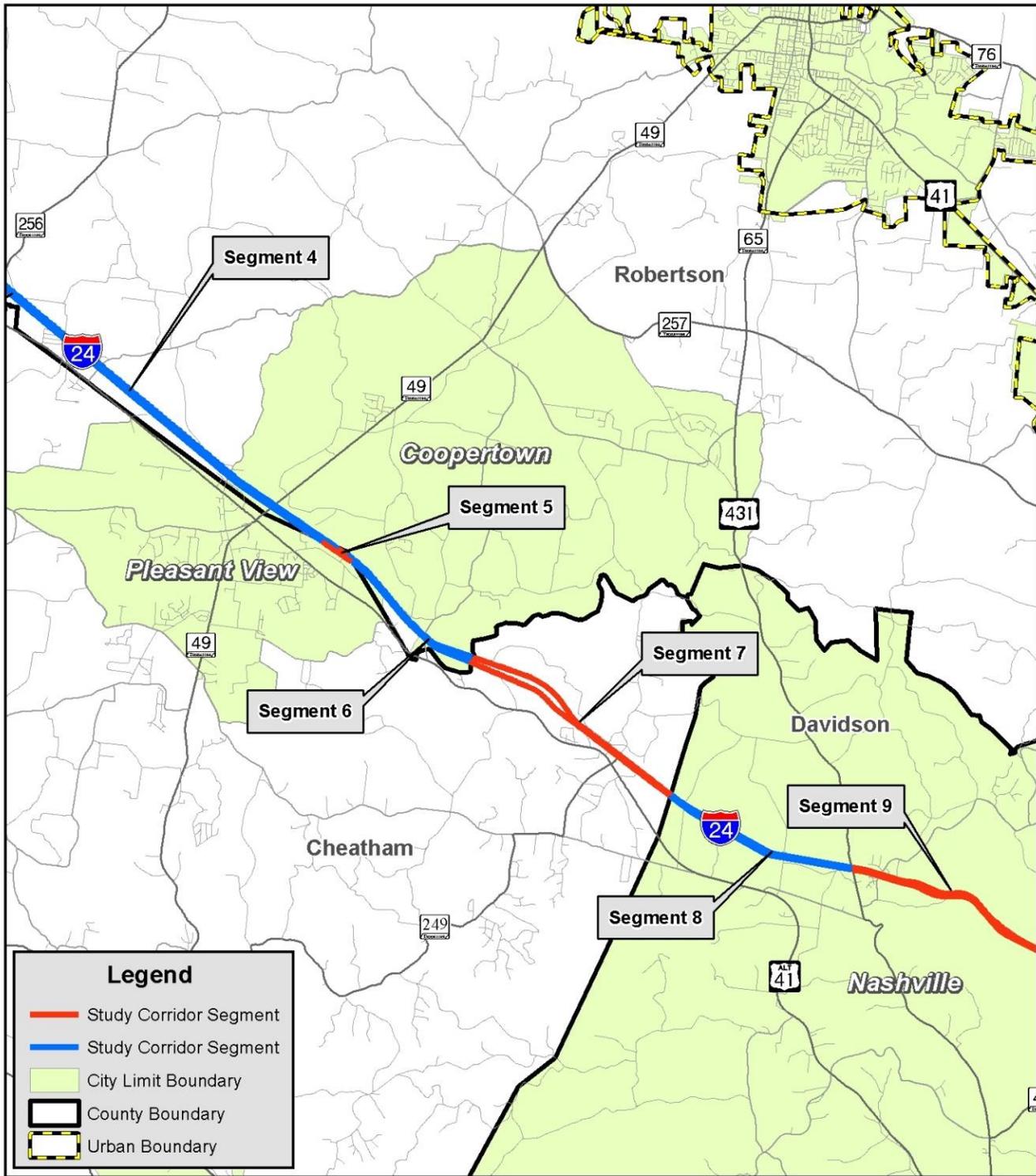
Figure 2.1: I-24 Corridor Segments - Montgomery and Robertson Counties



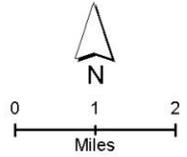
**Interstate 24 Corridor Segments
Montgomery and Robertson Counties**

I-24 MULTIMODAL CORRIDOR STUDY

Figure 2.2: I-24 Corridor Segments - Robertson, Cheatham and Davidson Counties



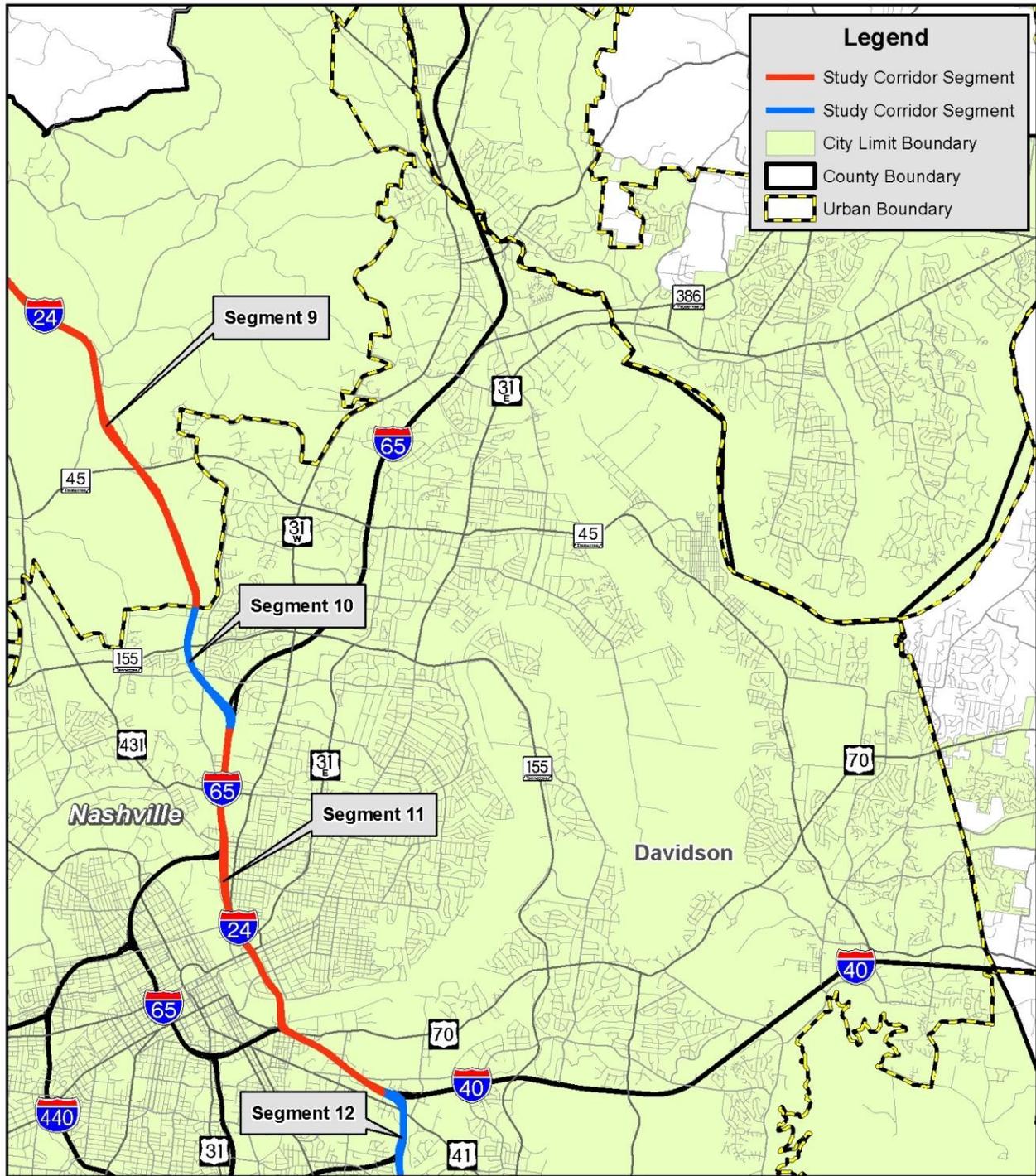




**Interstate 24 Corridor Segments
Robertson, Cheatham, and Davidson Counties**

I-24 MULTIMODAL CORRIDOR STUDY

Figure 2.3: I-24 Corridor Segments - Davidson County



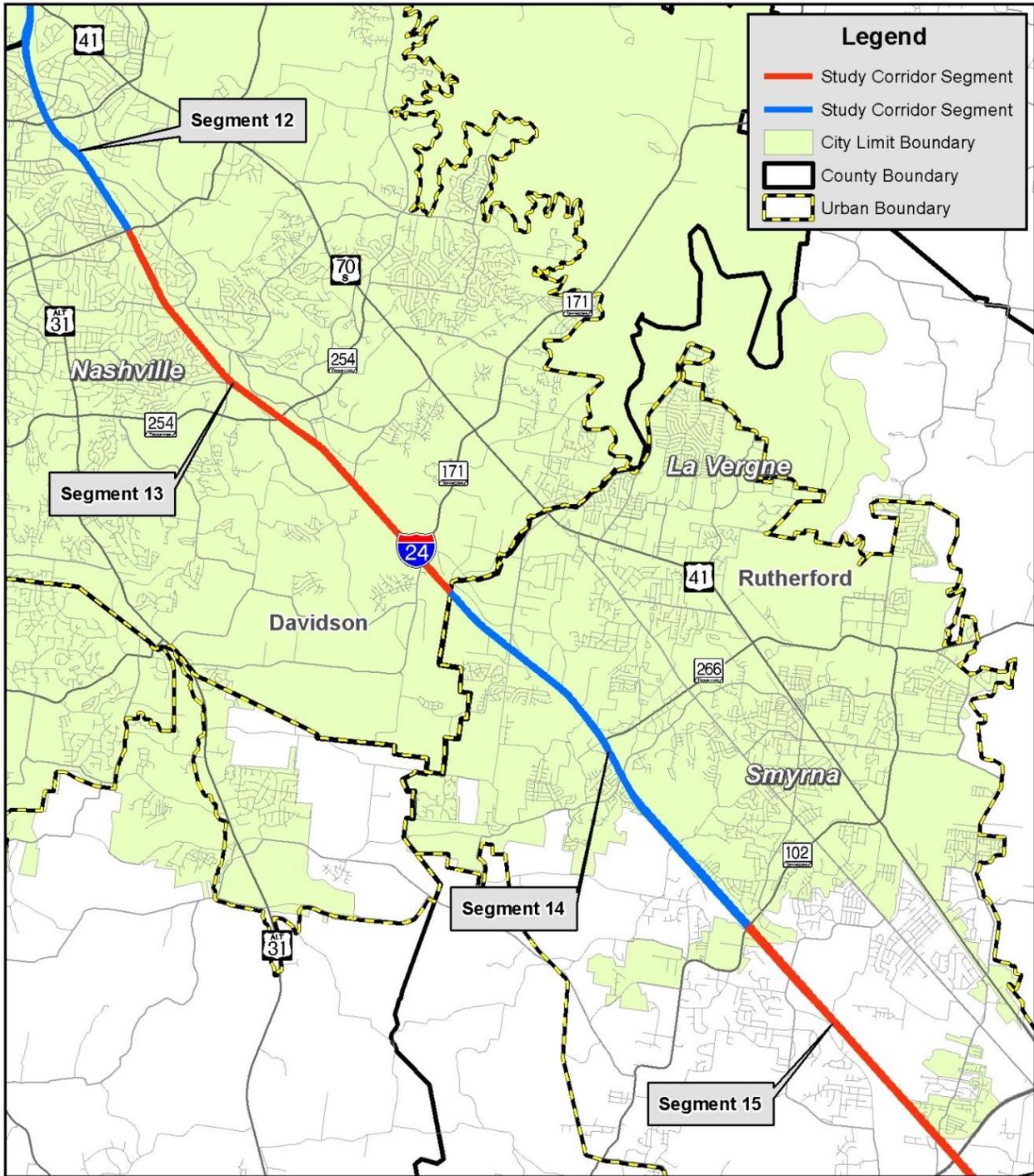
INTERSTATE 24
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CORRIDOR STUDY

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**Interstate 24 Corridor Segments
Davidson County**

I-24 MULTIMODAL CORRIDOR STUDY

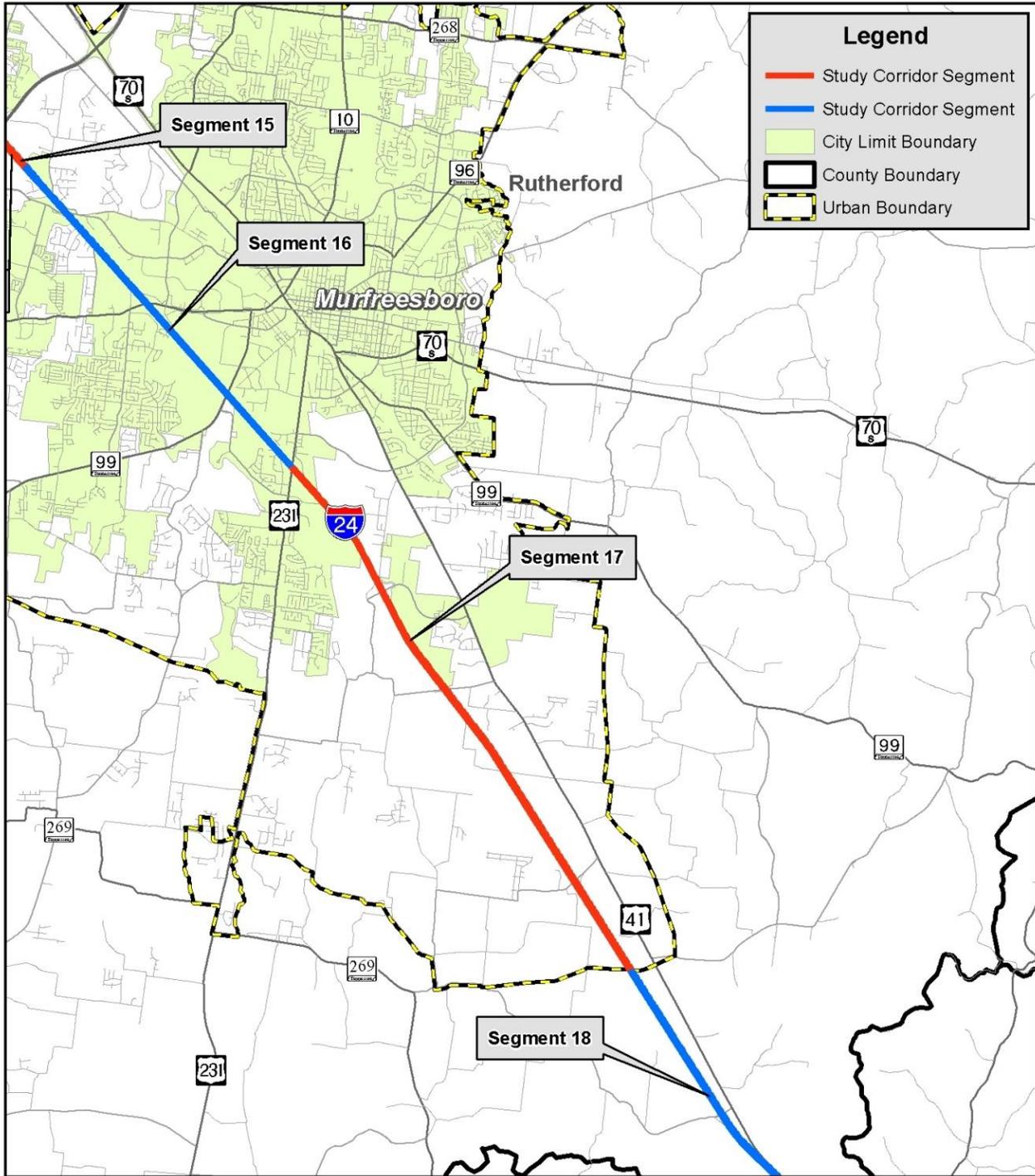
Figure 2.4: I-24 Corridor Segments - Davidson and Rutherford Counties



**Interstate 24 Corridor Segments
Davidson and Rutherford Counties**

I-24 MULTIMODAL CORRIDOR STUDY

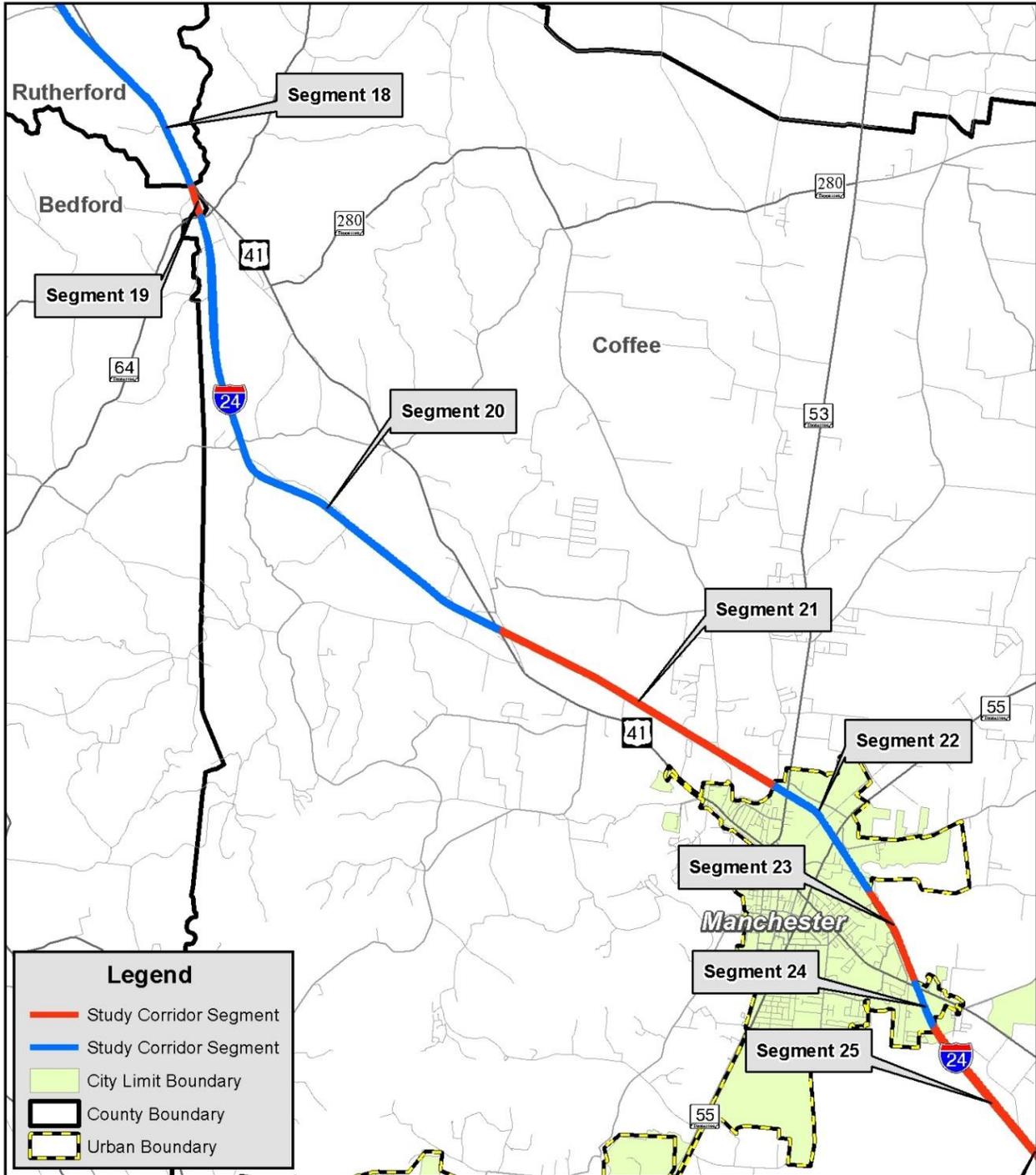
Figure 2.5: I-24 Corridor Segments - Rutherford County



**Interstate 24 Corridor Segments
Rutherford County**

I-24 MULTIMODAL CORRIDOR STUDY

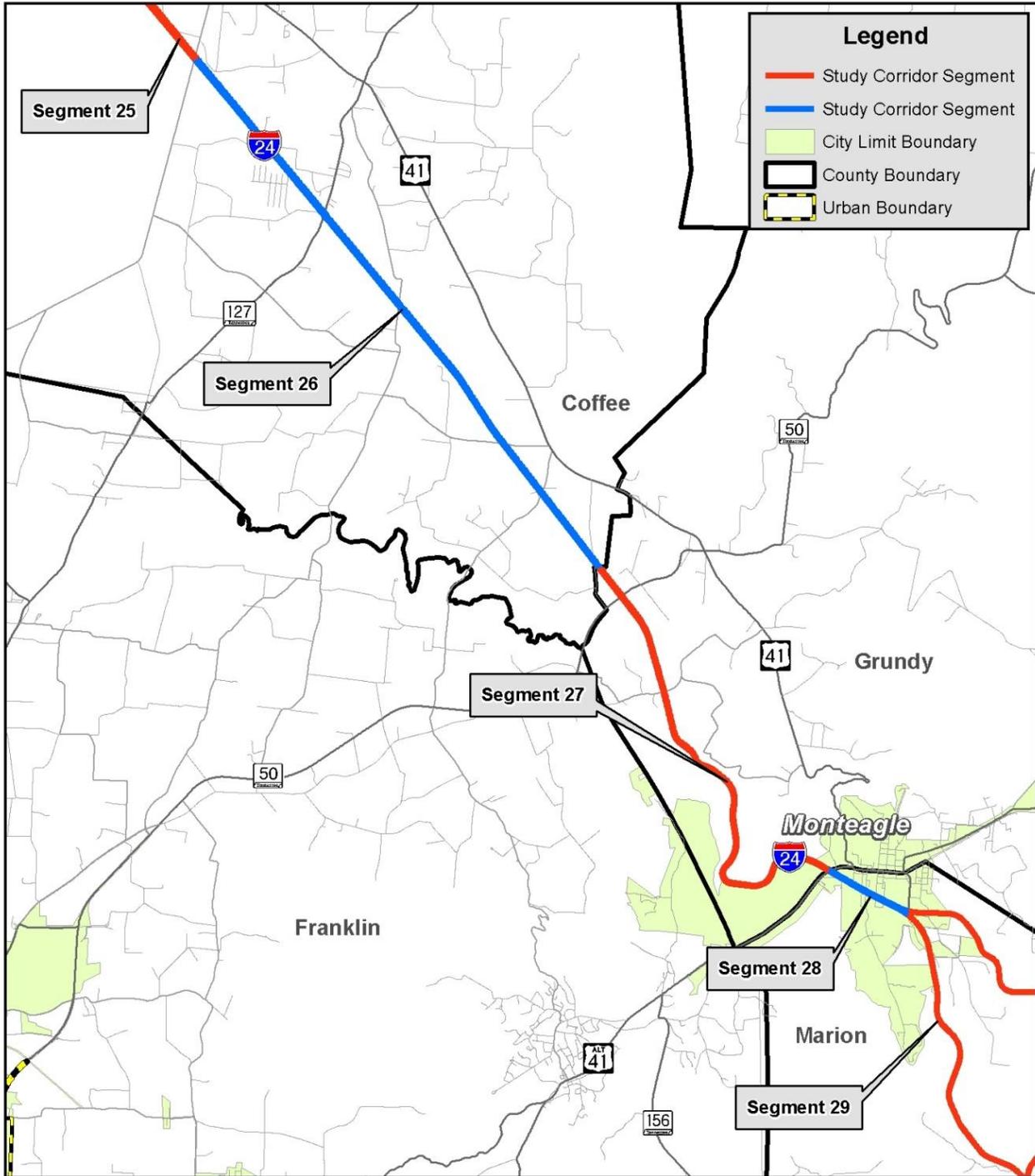
Figure 2.6: I-24 Corridor Segments - Rutherford, Bedford and Coffee Counties



**Interstate 24 Corridor Segments
Rutherford, Bedford, and Coffee Counties**

I-24 MULTIMODAL CORRIDOR STUDY

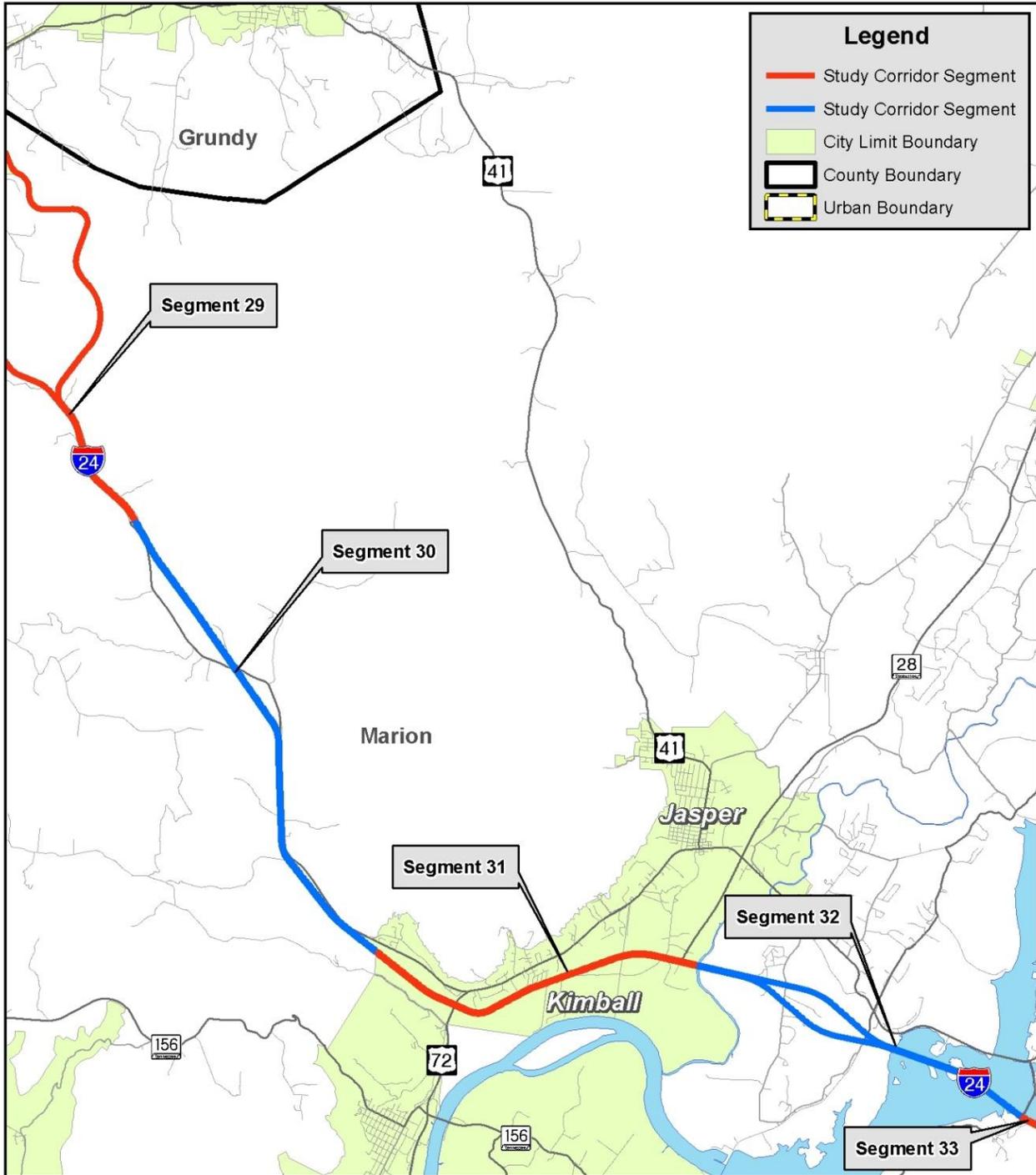
Figure 2.7: I-24 Corridor Segments - Coffee, Grundy and Marion Counties



**Interstate 24 Corridor Segments
Coffee, Grundy, and Marion Counties**

I-24 MULTIMODAL CORRIDOR STUDY

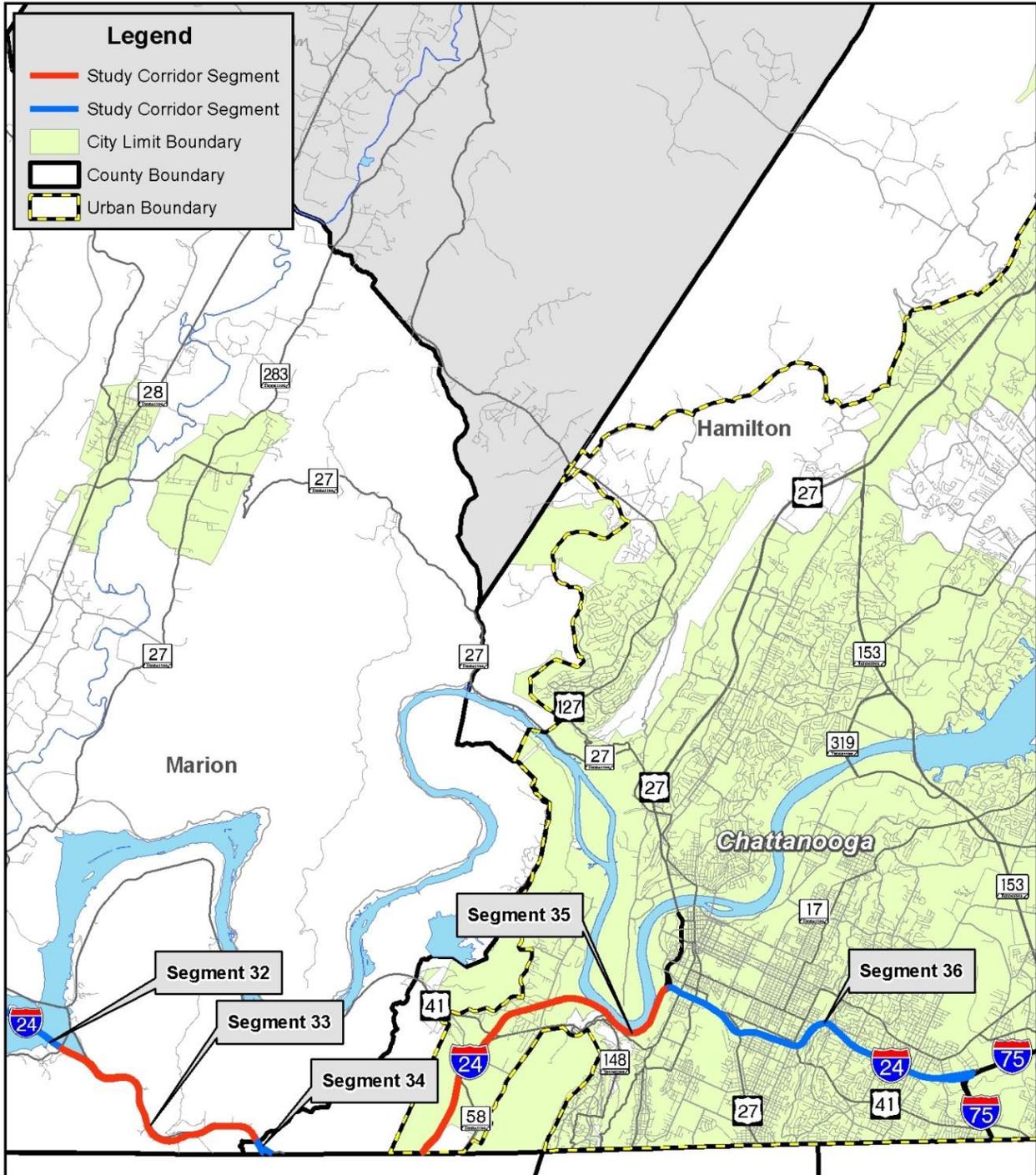
Figure 2.8: I-24 Corridor Segments - Marion County



**Interstate 24 Corridor Segments
Marion County**

I-24 MULTIMODAL CORRIDOR STUDY

Figure 2.9: I-24 Corridor Segments - Marion and Hamilton Counties



**Interstate 24 Corridor Segments
Marion and Hamilton Counties**

I-24 MULTIMODAL CORRIDOR STUDY

Table 2.1: Summary of Cross-Sectional Element Evaluation by I-24 Segment

I-24 Segment	County	Substandard Shoulder (Impacted Log Miles)	Substandard Lane Widths (Impacted Log Miles)	Substandard Median (Impacted Log Miles)	Substandard Clear Zone (Impacted Log Miles)
1	Montgomery	1			
2	Montgomery	1			
3	Montgomery				3
4	Robertson				
5	Cheatham				
6	Robertson				
7	Cheatham				
8	Davidson				
9	Davidson				
10	Davidson	1			
11	Davidson	1			1
12	Davidson	1			
13	Davidson	1			
14	Rutherford	1			
15	Rutherford	1			1
16	Rutherford	1			
17	Rutherford				
18	Rutherford				
19	Bedford				
20	Coffee				
21	Coffee				
22	Coffee				
23	Coffee				1
24	Coffee				2
25	Coffee				
26	Coffee				1
27	Grundy	1		1	1
28	Marion	1			
29	Marion	1			
30	Marion				1
31	Marion	1			
32	Marion	1			
33	Marion	1		1	
34	Hamilton				
35	Hamilton			1	
36	Hamilton	1		1	1
	Totals	16	0	4	12

Note: Impacted Log Miles = Number of whole directional log miles with one or more deficiencies.

The TRIMS database was used to identify portions of the roadway with grades of steeper than 3%. These grades in conjunction with design speed and type of terrain were compared to the allowable values in Table 8-1 of AASHTO's A Policy on Geometric Design of Highways and Streets 2011 to determine if a deficiency existed. Please refer to Table 2.2 for a summary of the vertical geometry evaluation by I-24 segment.

2.4 Horizontal Geometry

Horizontal curvature of the roadway in addition to superelevation transition lengths were evaluated based on an appropriate design speed for the current posted speed. Checking actual superelevation rates was not practical, so the distance between successive curves were compared to TDOT standards to confirm that required transitions were possible. Please refer to Table 2.2 for a summary of the horizontal geometry evaluation by I-24 segment.

2.5 Bridge Condition

Data on bridge conditions was gathered using TDOT's Inventory of Structurally Deficient State Maintained Bridges and Bridge Inventory and Appraisal Reports. Bridges listed on the Structurally Deficient list or any bridge with a sufficiency rating of less than 50, which would qualify them for replacement, were identified as deficient. In addition, bridges with a Sufficiency Rating of greater than 50 and less than 75, making them a candidate for either replacement or major rehabilitation if widened, were identified to assist in the future identification of projects. Some bridges have railings which may not be NCHRP-350 compliant. These structures were also identified and listed as deficient.

Bridge Inventory and Appraisal Reports and field inspections were also used to identify any structures with deficient horizontal or vertical clearances and also if they could accommodate any future widening. Deficiencies were identified as vertical clearances that were less than 16.0 feet for I-24 mainline sections and ramps, 21.5 feet for railroads, and 14.5 feet for all other non-interstate roadways.

Please refer to Table 2.3 for a summary of the bridge condition evaluation by I-24 segment.

2.6 Pavement Condition

Data on pavement condition for the roadway was obtained through TDOT's Pavement Management Section of the Materials and Tests Division. Using the recommendation of the Department's personnel, sections of the roadway with a Pavement Quality Index (PQI) of 3.5 or less were identified as deficient and in need of rehabilitation. A field review determined that the overall pavement condition on I-24 seemed in good condition and was consistent with the evaluation completed by TDOT's Pavement Management Section. Please refer to Table 2.4 for a summary of the pavement condition evaluation by I-24 segment.

Table 2.2: Summary of Vertical and Horizontal Geometry Evaluation by I-24 Segment

I-24 Segment	County	Substandard Horizontal Alignment (Impacted Log Miles)	Substandard Vertical Alignment (Impacted Log Miles)	Proposed Extension of Existing Truck Lanes (Impacted Log Miles)	Proposed New Truck Lanes (Impacted Log Miles)
1	Montgomery		2		
2	Montgomery		2		
3	Montgomery		1		
4	Robertson				
5	Cheatham				
6	Robertson				
7	Cheatham		1	2	
8	Davidson		2		
9	Davidson		2		
10	Davidson				
11	Davidson				
12	Davidson				
13	Davidson		1		
14	Rutherford		2		
15	Rutherford				
16	Rutherford				
17	Rutherford				
18	Rutherford				
19	Bedford				
20	Coffee		1		
21	Coffee		6		
22	Coffee				
23	Coffee				
24	Coffee				
25	Coffee				
26	Coffee				
27	Grundy	1			6
28	Marion				
29	Marion	1	1		
30	Marion				
31	Marion		4		
32	Marion				4
33	Marion		1		
34	Hamilton		1		
35	Hamilton	2			
36	Hamilton	2			
	Totals	6	27	2	10

Note: Impacted Log Miles = Number of whole directional log miles with one or more deficiencies or occurrences.

Table 2.3: Summary of Bridge Condition Evaluation by I-24 Segment

I-24 Segment	County	Bridge Condition Sufficiency Rating < 50 (Each)	Bridge Condition Sufficiency Rating Between 50 - 75 (Each)	Bridge Condition Structurally Deficient (Each)	Bridge Rail Condition Deficient Locations (Each)	Bridge Does Not Allow I-24 Widening (Each)	Substandard Bridge Width (Each)	Substandard Vertical Bridge Clearance (Each)
1	Montgomery				2			
2	Montgomery				3			
3	Montgomery				1			
4	Robertson		1		1			
5	Cheatham							
6	Robertson				1			
7	Cheatham		1		1			
8	Davidson		1		1			2
9	Davidson		7	1	3			2
10	Davidson		2	1	4	1		
11	Davidson		6	1		6		2
12	Davidson		2	1		3	1	1
13	Davidson		7			2		1
14	Rutherford		5			1		
15	Rutherford							
16	Rutherford		1			2		
17	Rutherford							
18	Rutherford		1					
19	Bedford							
20	Coffee		7		4			
21	Coffee							
22	Coffee		1					
23	Coffee							
24	Coffee							
25	Coffee							
26	Coffee							
27	Grundy							1
28	Marion	1	4					1
29	Marion		1					
30	Marion							
31	Marion		1					
32	Marion		2			2		
33	Marion							
34	Hamilton							
35	Hamilton		6	1				1
36	Hamilton		5			10	2	
Totals		1	61	5	21	27	3	11

Table 2.4: Summary of Pavement Condition and Potential Rockslide Evaluation by I-24 Segment

I-24 Segment	County	Pavement Condition PQI < 3.5 (Impacted Log Miles)	Potential Rock Slide Areas (Impacted Log Miles)
1	Montgomery		
2	Montgomery		
3	Montgomery		
4	Robertson		
5	Cheatham		
6	Robertson		1
7	Cheatham	2	1
8	Davidson		
9	Davidson		5
10	Davidson		2
11	Davidson	1	2
12	Davidson	4	
13	Davidson	1	1
14	Rutherford		
15	Rutherford	1	1
16	Rutherford		
17	Rutherford		
18	Rutherford	2	
19	Bedford	2	
20	Coffee		2
21	Coffee		
22	Coffee		
23	Coffee		
24	Coffee		
25	Coffee		
26	Coffee		
27	Grundy		1
28	Marion		1
29	Marion	1	4
30	Marion	2	3
31	Marion	2	
32	Marion		1
33	Marion		1
34	Hamilton		
35	Hamilton	2	
36	Hamilton	2	
	Totals	22	26

Note: Impacted Log Miles = Number of whole directional log miles with one or more deficiencies or occurrences.

2.7 Potential Rockslides

Rock cuts that were of sufficient height and in close enough proximity to I-24 to pose a threat to traffic if a slide occurred were evaluated in the field. Potential slide locations were identified by areas that either 1) showed signs of recent failures that could threaten traffic, 2) showed noticeable erosion of the soil surrounding the rock cut, 3) included a cut that contained layers of “weathering shale” that showed signs of noticeable deterioration, or 4) previously repaired areas where the repair showed signs of deterioration. It should be noted that the roadway between US-64/Dixie Lee Highway (exit 135) and SR-2/Battle Creek Road (exit 143) had several previously repaired areas that showed significant deterioration. Please refer to Table 2.4 for a summary of the potential rockslide evaluation by I-24 segment.

2.8 Interchange Configuration

Interchanges along the I-24 Corridor were examined to determine if they met the current standards and guidelines for a variety of characteristics. If any element of the interchange design violated current standards or good design practice it was identified as deficient. The interchanges were evaluated for the following elements:

- Overall spacing (1 mile urban, 2 miles rural)
- Ramp spacing (Based on Figure 10-68 of AASHTO - A Policy on Geometric Design of Highways and Streets 2011)
- Ramp lengths and ramp design speed (Based on Tables 10-3 and 10-5 of AASHTO - A Policy on Geometric Design of Highways and Streets 2011)
- Coordination of lane balance and basic number of lanes. (Based on Figures 10-50 and 10-51 of AASHTO - A Policy on Geometric Design of Highways and Streets 2011)
- Weaving section lengths
- Uniformity of Interchange Patterns. Interchanges were analyzed as a group and inconsistencies such as non-uniform entrance and exit ramp patterns, left hand exits and ramp patterns that prohibit proper signage were identified.

It should be noted that the primary issue with the interchange configurations evaluation involved substandard ramp lengths. Please refer to Table 2.5 for a summary of the interchange configuration evaluation by I-24 segment.

Table 2.5: Summary of Interchange Configuration Evaluation by I-24 Segment

I-24 Segment	County	Substandard Ramp Length or Geometry (Each)	Substandard Ramp Spacing or Weaving Section (Each)	Substandard Interchange Spacing (Each)	Improper Lane Balance (Each)	Interchange Uniformity Violation (Each)
1	Montgomery					
2	Montgomery					
3	Montgomery					
4	Robertson					
5	Cheatham					
6	Robertson					
7	Cheatham					
8	Davidson					
9	Davidson					
10	Davidson		2		1	1
11	Davidson	1	1	3		4
12	Davidson		3	1	12	1
13	Davidson	6		1		2
14	Rutherford	1				2
15	Rutherford	2	1			1
16	Rutherford					2
17	Rutherford	2				1
18	Rutherford					
19	Bedford					
20	Coffee	1				
21	Coffee	3				
22	Coffee	4				1
23	Coffee					
24	Coffee	5				
25	Coffee	6				
26	Coffee	1				
27	Grundy	6				1
28	Marion	2		1		
29	Marion					
30	Marion	3				
31	Marion	1				1
32	Marion	9		1		
33	Marion					
34	Hamilton					
35	Hamilton	3			2	2
36	Hamilton	6	1	4		1
	Totals	62	8	11	15	20

Appendix A

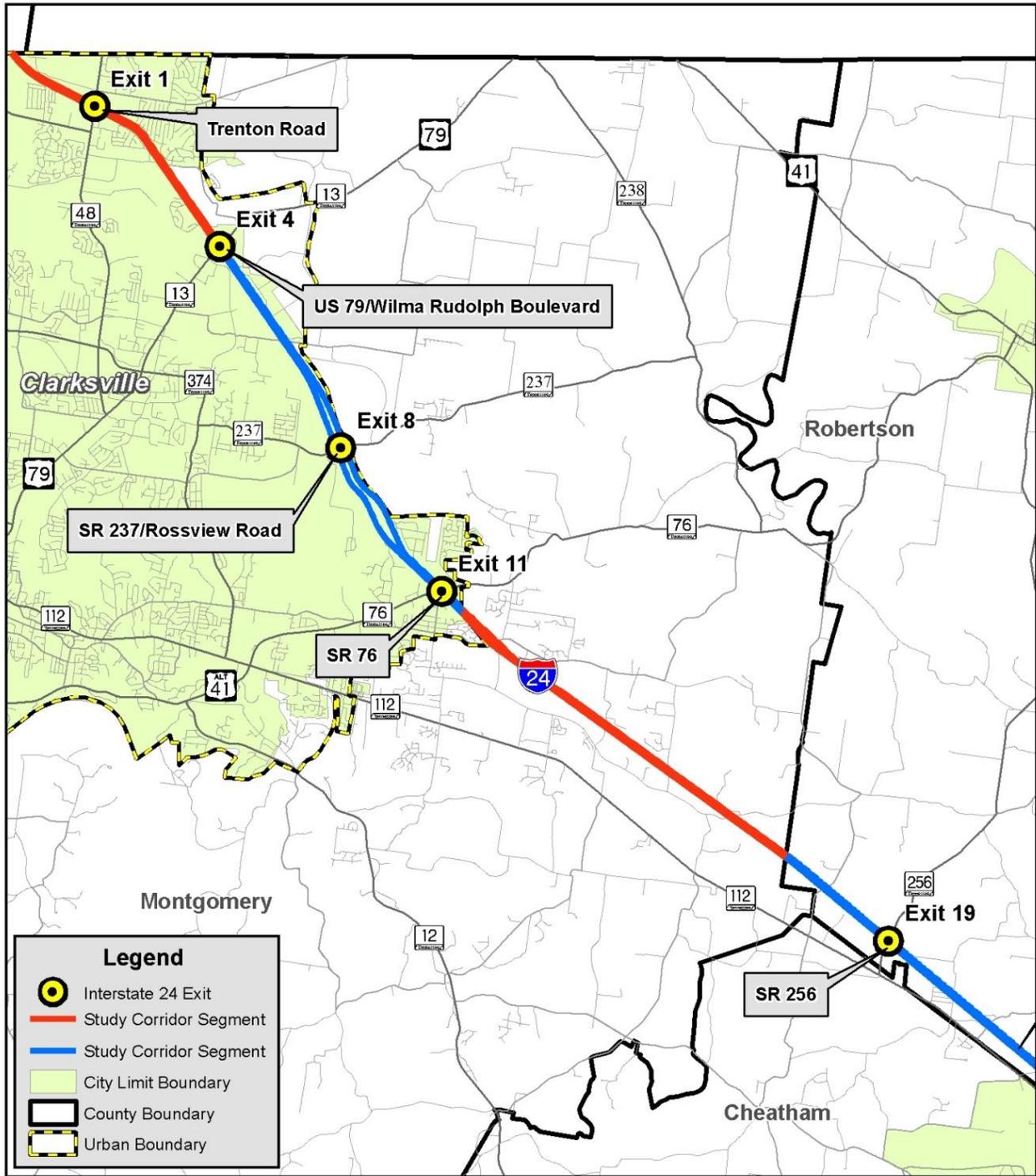
Definition of I-24 Corridor Segments

I-24 Corridor Segments

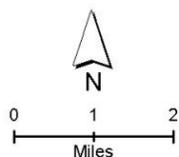
I-24 Segment	TDOT Region	TN County Number	TN County Name	Beginning Mile Log (by County)	Ending Mile Log (by County)	Segment Distance	TRIMS env_Type	TRIMS beginning description	TRIMS ending description
1	3	63	MONTGOMERY	0.000	4.410	4.410	URBAN	KENTUCKY-TENNESSEE STATE LINE	SR-13 WILMA RUDOLPH BLVD. / CENTER OF OVERHEAD
2	3	63	MONTGOMERY	4.410	11.033	6.623	URBAN	SR-13 WILMA RUDOLPH BLVD. / CENTER OF OVERHEAD	LEAVE CLARKSVILLE CITY LIMITS
3	3	63	MONTGOMERY	11.033	17.200	6.167	RURAL	LEAVE CLARKSVILLE CITY LIMITS	MONTGOMERY-ROBERTSON COUNTY LINE
4	3	74	ROBERTSON	0.000	8.120	8.120	RURAL	MONTGOMERY-ROBERTSON COUNTY LINE	ROBERTSON-CHEATHAM COUNTY LINE
5	3	11	CHEATHAM	0.000	0.700	0.700	RURAL	ROBERTSON-CHEATHAM COUNTY LINE	CHEATHAM-ROBERTSON COUNTY LINE
6	3	74	ROBERTSON	0.000	2.330	2.330	RURAL	CHEATHAM-ROBERTSON COUNTY LINE	ROBERTSON-CHEATHAM COUNTY LINE
7	3	11	CHEATHAM	0.000	3.630	3.630	RURAL	ROBERTSON-CHEATHAM COUNTY LINE	CHEATHAM-DAVIDSON COUNTY LINE
8	3	19	DAVIDSON	0.000	3.000	3.000	RURAL	CHEATHAM-DAVIDSON COUNTY LINE	SR-65 WHITES CREEK PK. / CENTER OF OVERHEAD
9	3	19	DAVIDSON	3.000	10.822	7.822	RURAL	SR-65 WHITES CREEK PK. / CENTER OF OVERHEAD	ENTER NASHVILLE URBAN BOUNDARY
10	3	19	DAVIDSON	10.822	12.990	2.168	URBAN	ENTER NASHVILLE URBAN BOUNDARY	I-65 SB LNS. RT. & LT.
11	3	19	DAVIDSON	12.990	16.060	3.070	URBAN	I-65 SB LNS. RT. & LT.	I-40 EB LNS. RT. & LT.
12	3	19	DAVIDSON	16.060	20.323	4.263	URBAN	I-40 EB LNS. RT. & LT.	SR-255 HARDING PL. / CENTER OF UNDERPASS
13	3	19	DAVIDSON	20.323	27.810	7.487	URBAN	SR-255 HARDING PL. / CENTER OF UNDERPASS	DAVIDSON-RUTHERFORD COUNTY LINE
14	3	75	RUTHERFORD	0.000	6.784	6.784	URBAN	DAVIDSON-RUTHERFORD COUNTY LINE	ENTER SMYRNA CITY LIMITS
15	3	75	RUTHERFORD	6.784	12.109	5.325	URBAN	ENTER SMYRNA CITY LIMITS	ENTER MURFREESBORO CITY LIMITS
16	3	75	RUTHERFORD	12.109	18.170	6.061	URBAN	ENTER MURFREESBORO CITY LIMITS	UNDERPASS [75I00240029]: SR-10 S. CHURCH ST.
17	3	75	RUTHERFORD	18.170	27.302	9.132	URBAN	UNDERPASS [75I00240029]: SR-10 S. CHURCH ST.	LEAVE NASHVILLE URBAN BOUNDARY
18	3	75	RUTHERFORD	27.302	33.290	5.988	RURAL	LEAVE NASHVILLE URBAN BOUNDARY	RUTHERFORD-BEDFORD COUNTY LINE
19	3	2	BEDFORD	0.000	0.450	0.450	RURAL	RUTHERFORD-BEDFORD COUNTY LINE	BEDFORD-COFFEE COUNTY LINE
20	2	16	COFFEE	0.000	8.420	8.420	RURAL	BEDFORD-COFFEE COUNTY LINE	SR-2 MURFREESBORO HWY. / CENTER OF UNDERPASS
21	2	16	COFFEE	8.420	13.137	4.717	RURAL	SR-2 MURFREESBORO HWY. / CENTER OF UNDERPASS	ENTER MANCHESTER CITY LIMITS
22	2	16	COFFEE	13.137	15.328	2.191	URBAN	ENTER MANCHESTER CITY LIMITS	LEAVE MANCHESTER URBAN BOUNDARY
23	2	16	COFFEE	15.328	16.828	1.500	RURAL	LEAVE MANCHESTER URBAN BOUNDARY	ENTER MANCHESTER URBAN BOUNDARY
24	2	16	COFFEE	16.828	17.601	0.773	URBAN	ENTER MANCHESTER URBAN BOUNDARY	LEAVE MANCHESTER CITY LIMITS & URBAN BOUNDARY
25	2	16	COFFEE	17.601	20.400	2.799	RURAL	LEAVE MANCHESTER CITY LIMITS & URBAN BOUNDARY	UNDERPASS [16I00240039]: 0918 ARNOLD CENTER RD.
26	2	16	COFFEE	20.400	30.160	9.760	RURAL	UNDERPASS [16I00240039]: 0918 ARNOLD CENTER RD.	COFFEE-GRUNDY COUNTY LINE
27	2	31	GRUNDY	0.000	7.310	7.310	RURAL	COFFEE-GRUNDY COUNTY LINE	GRUNDY-MARION COUNTY LINE
28	2	58	MARION	0.000	1.380	1.380	RURAL	GRUNDY-MARION COUNTY LINE	SR-2 DIXIE LEE AVE. / CENTER OF UNDERPASS
29	2	58	MARION	1.380	8.360	6.980	RURAL	SR-2 DIXIE LEE AVE. / CENTER OF UNDERPASS	SR-2 BATTLE CREEK RD. / CENTER OF UNDERPASS
30	2	58	MARION	8.360	16.073	7.713	RURAL	SR-2 BATTLE CREEK RD. / CENTER OF UNDERPASS	ENTER KIMBALL CITY LIMITS
31	2	58	MARION	16.073	21.354	5.281	RURAL	ENTER KIMBALL CITY LIMITS	LEAVE JASPER CITY LIMITS
32	2	58	MARION	21.354	26.810	5.456	RURAL	LEAVE JASPER CITY LIMITS	SR-156 STATE HWY. 156 / CENTER OF UNDERPASS
33	2	58	MARION	26.810	32.130	5.320	RURAL	SR-156 STATE HWY. 156 / CENTER OF UNDERPASS	MARION-HAMILTON COUNTY LINE
34	2	33	HAMILTON	0.000	0.310	0.310	RURAL	MARION-HAMILTON COUNTY LINE	TENNESSEE-GEORGIA STATE LINE
35	2	33	HAMILTON	0.000	7.520	7.520	URBAN	TENNESSEE-GEORGIA STATE LINE	OVERHEAD [33I00240015]: I-124 US-27 NB LNS. / RT. LNS. ONLY
36	2	33	HAMILTON	7.520	14.710	7.190	URBAN	OVERHEAD [33I00240015]: I-124 US-27 NB LNS. / RT. LNS. ONLY	I-75 US-74 NB LNS. RT. & LT.

Appendix B

Maps of I-24 Exits

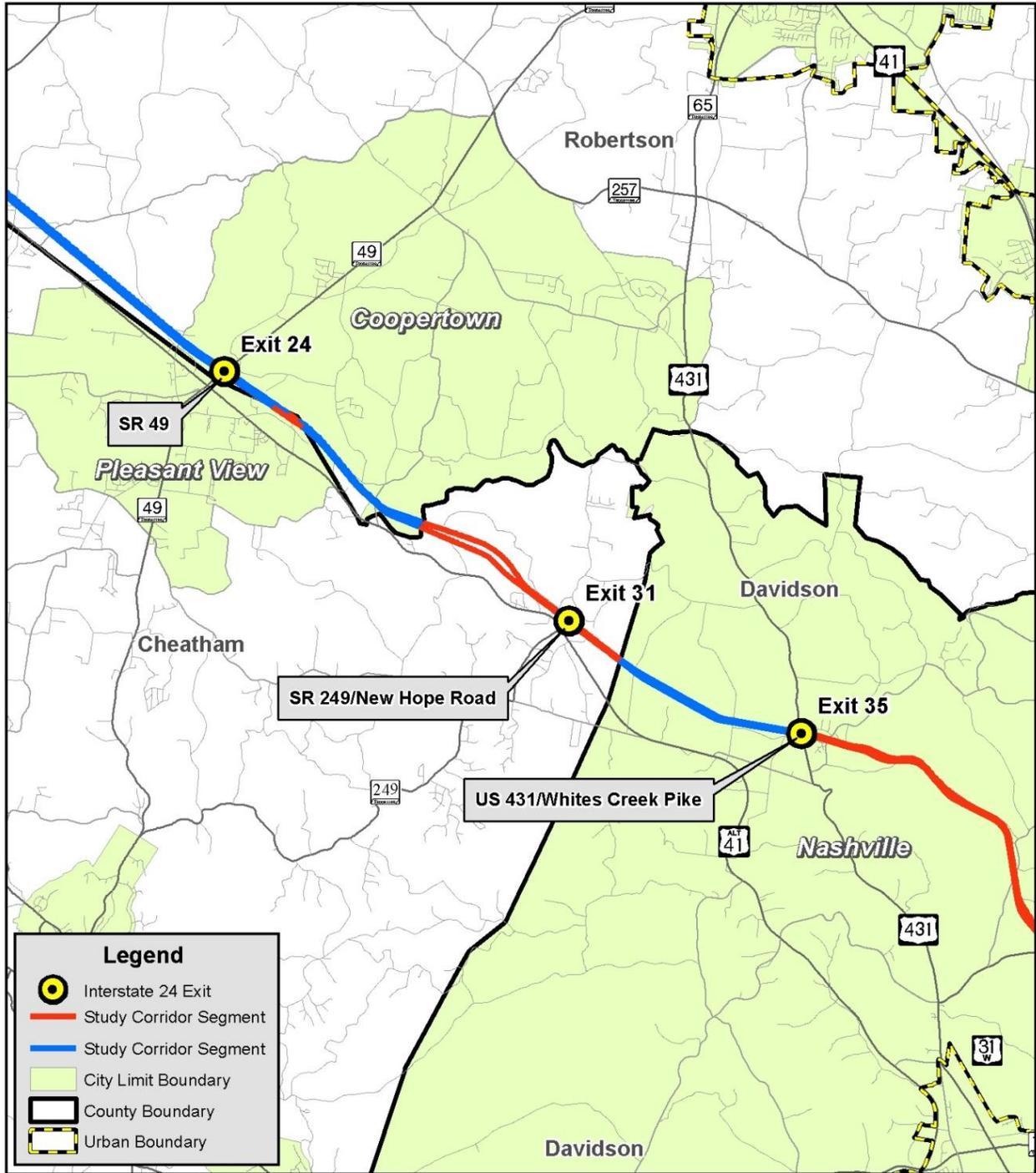






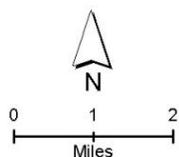
**Interstate 24 Exits
Montgomery and Robertson Counties**

I-24 MULTIMODAL CORRIDOR STUDY





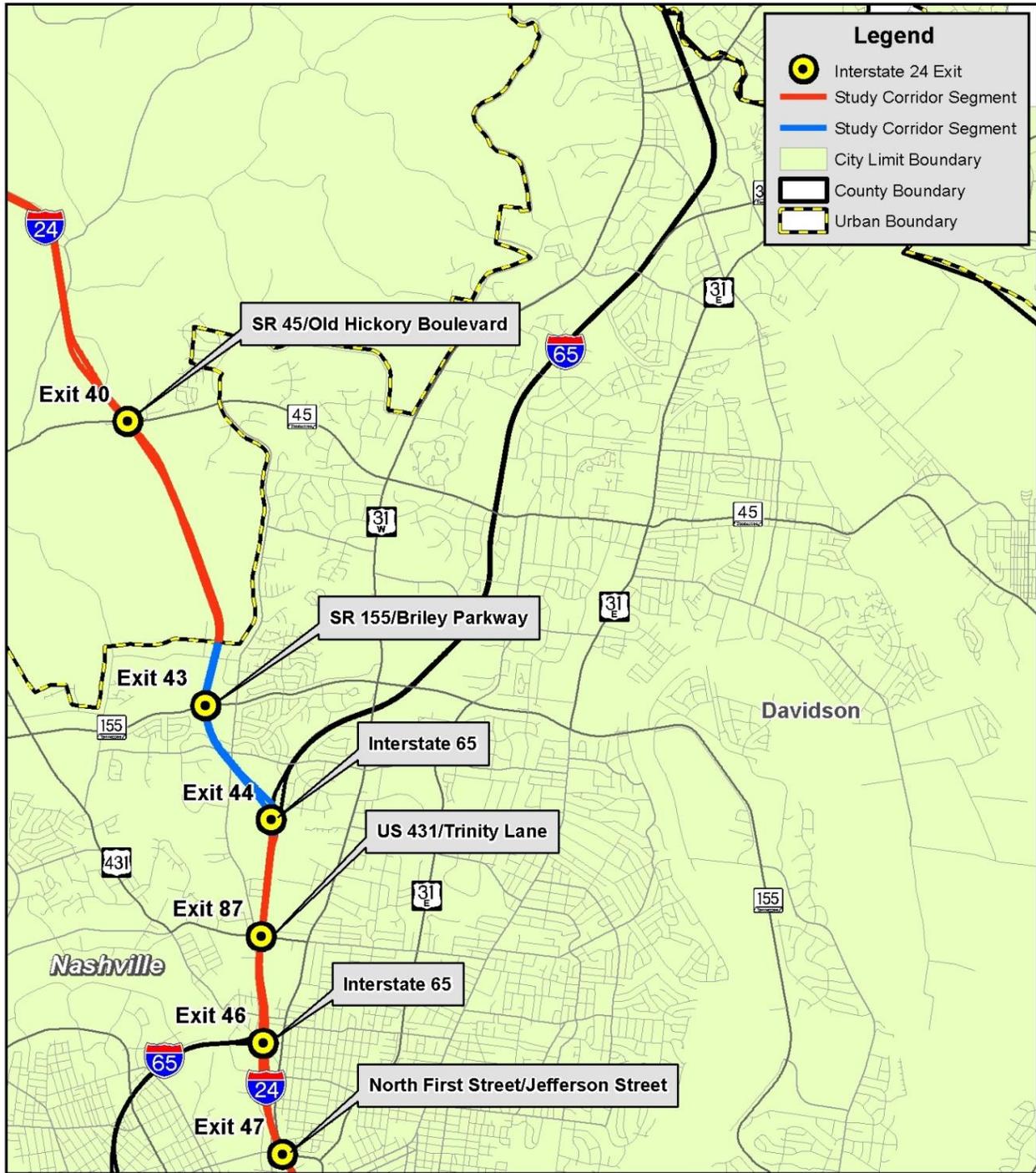
**INTERSTATE
24
TDOT
CORRIDOR STUDY**



0 1 2
Miles

**Interstate 24 Exits
Robertson, Cheatham, and Davidson Counties**

I-24 MULTIMODAL CORRIDOR STUDY



INTERSTATE 24
TDOT
CORRIDOR STUDY

N

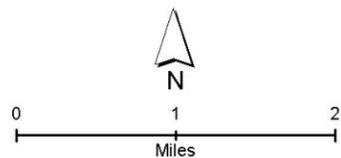
0 1 2
Miles

**Interstate 24 Exits
Davidson County**

I-24 MULTIMODAL CORRIDOR STUDY

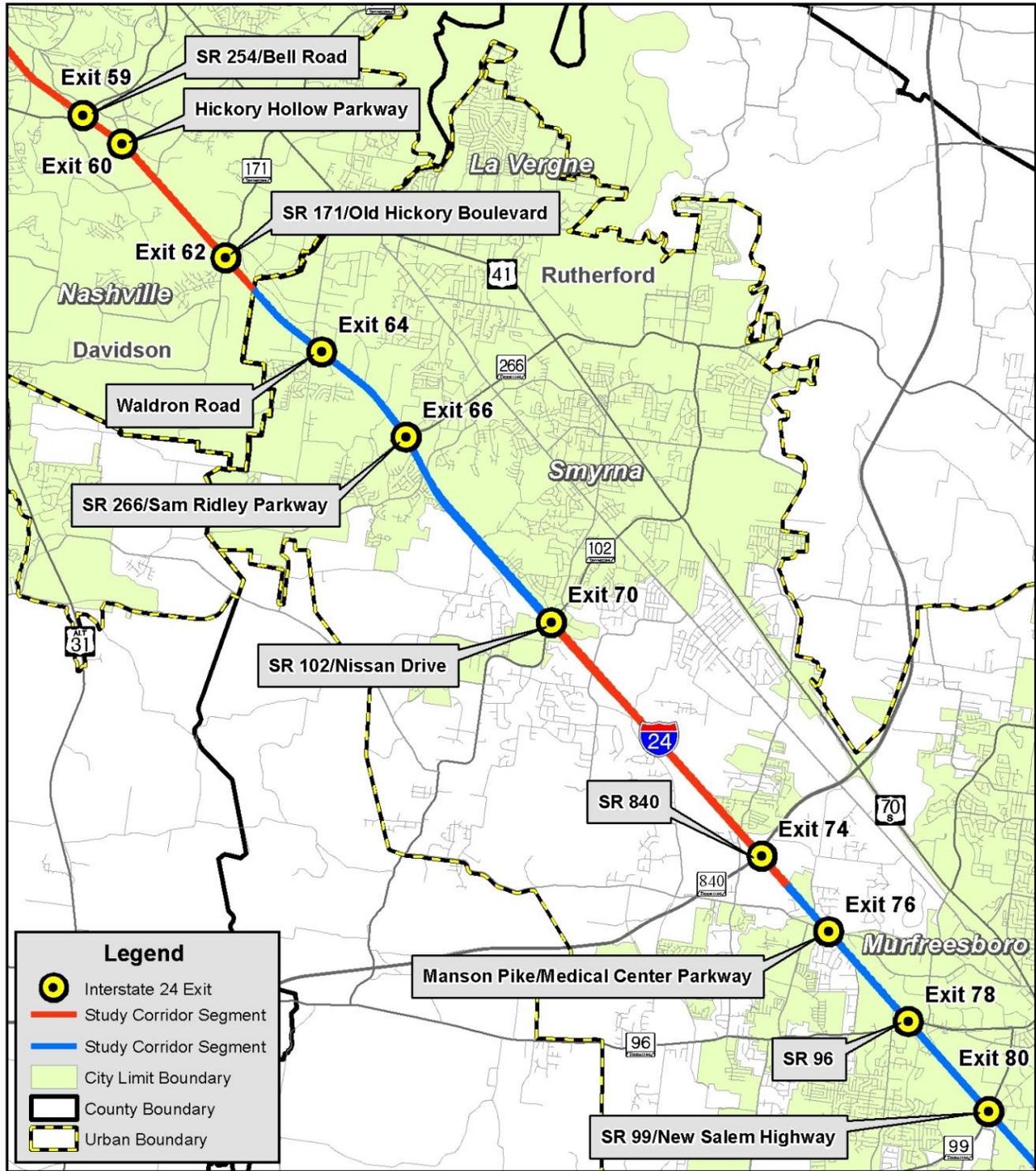




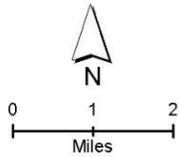


**Interstate 24 Exits
Davidson County**

I-24 MULTIMODAL CORRIDOR STUDY

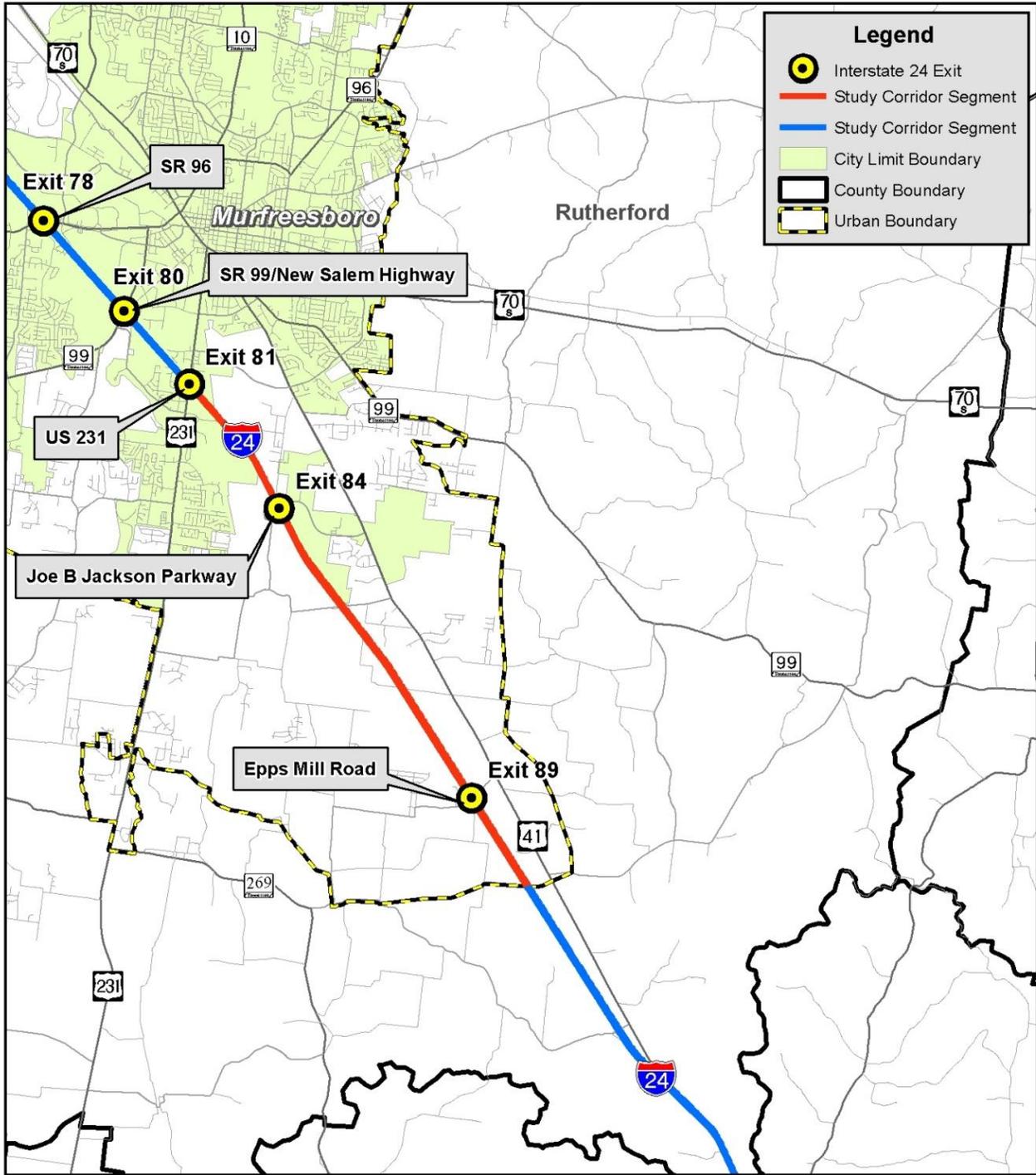






Interstate 24 Exits
Davidson and Rutherford Counties

I-24 MULTIMODAL CORRIDOR STUDY

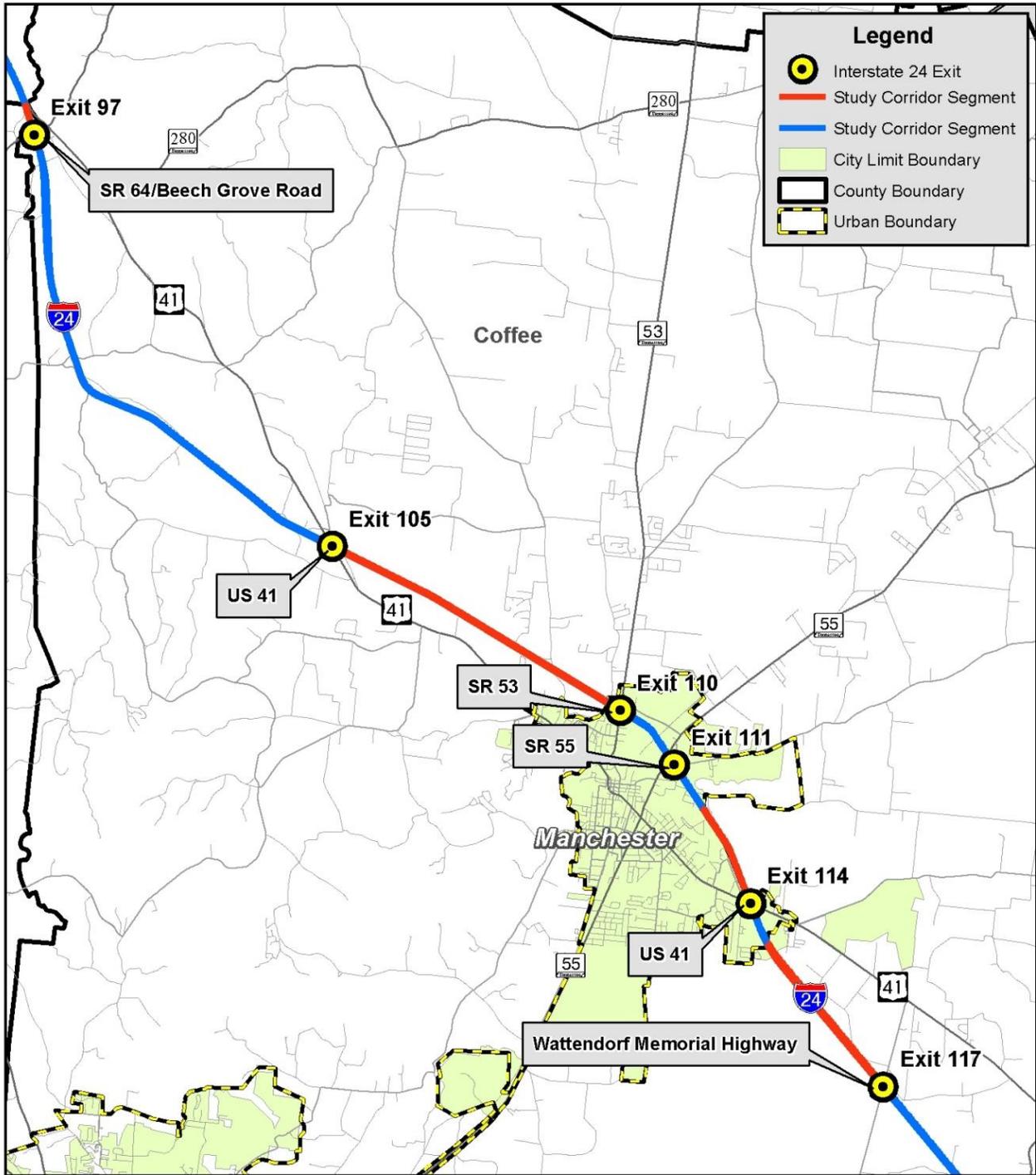


INTERSTATE 24
TDOT
CORRIDOR STUDY

N
0 1 2
Miles

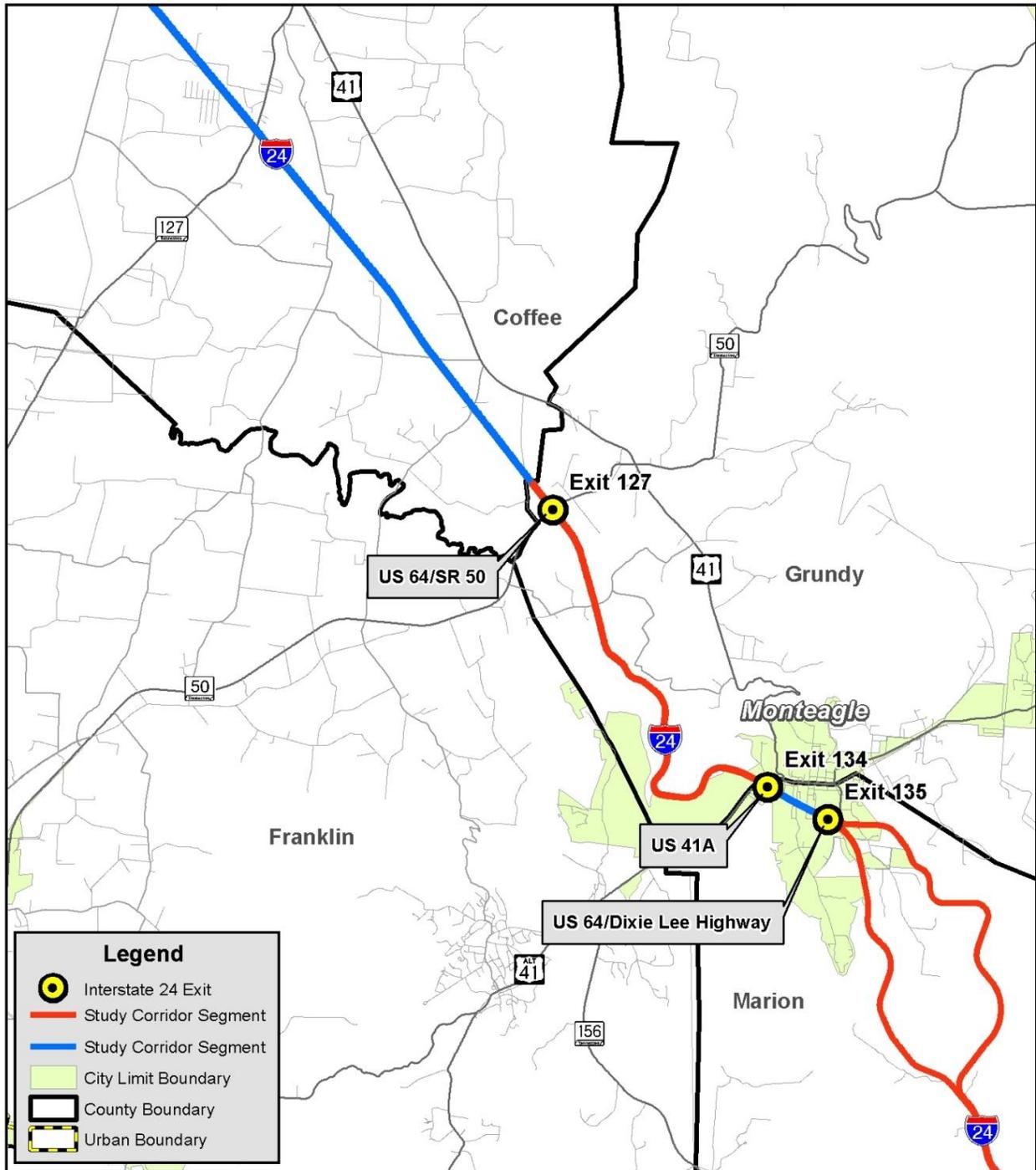
**Interstate 24 Exits
Rutherford County**

I-24 MULTIMODAL CORRIDOR STUDY



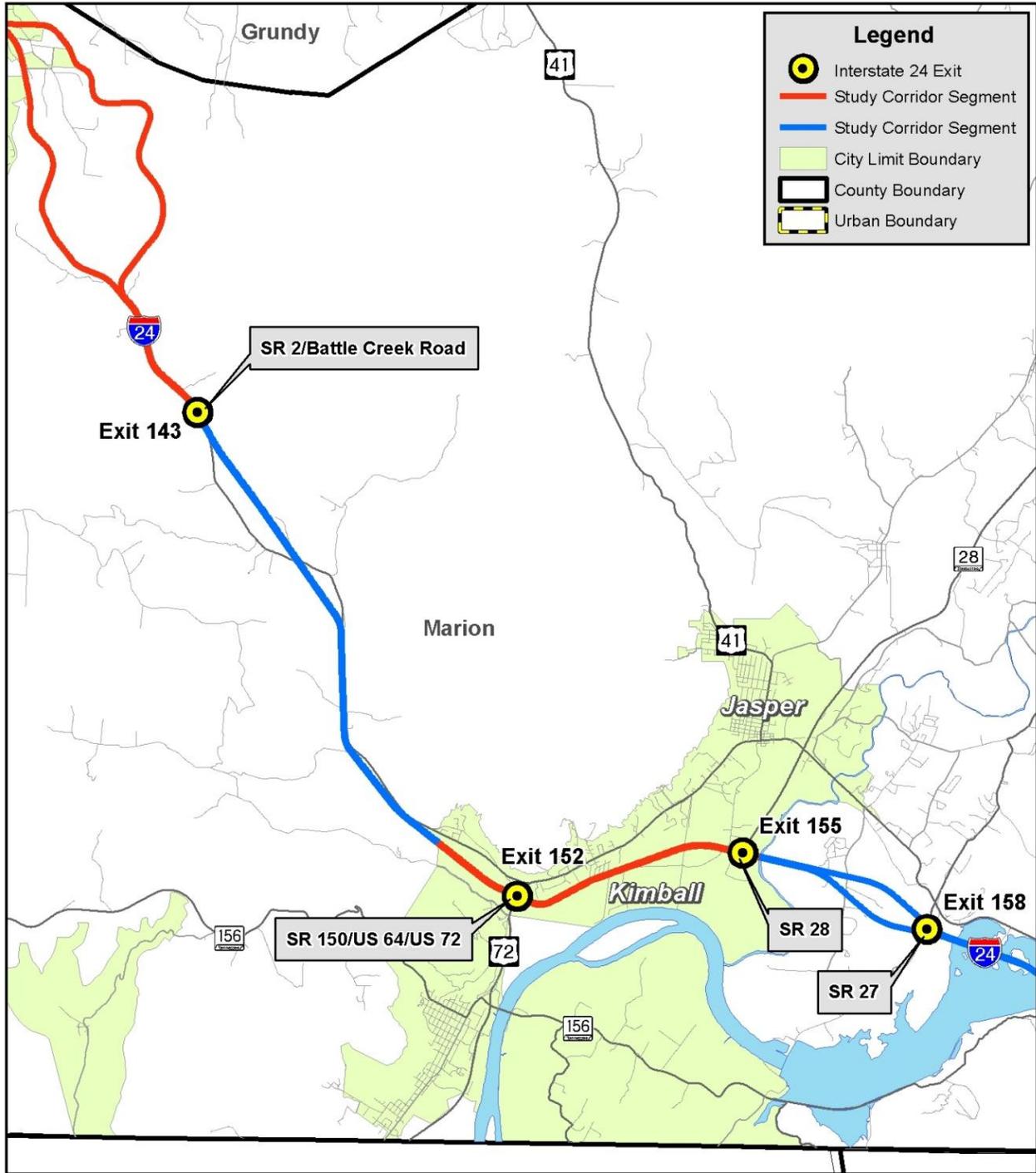
Interstate 24 Exits
Rutherford, Bedford, and Coffee Counties

I-24 MULTIMODAL CORRIDOR STUDY



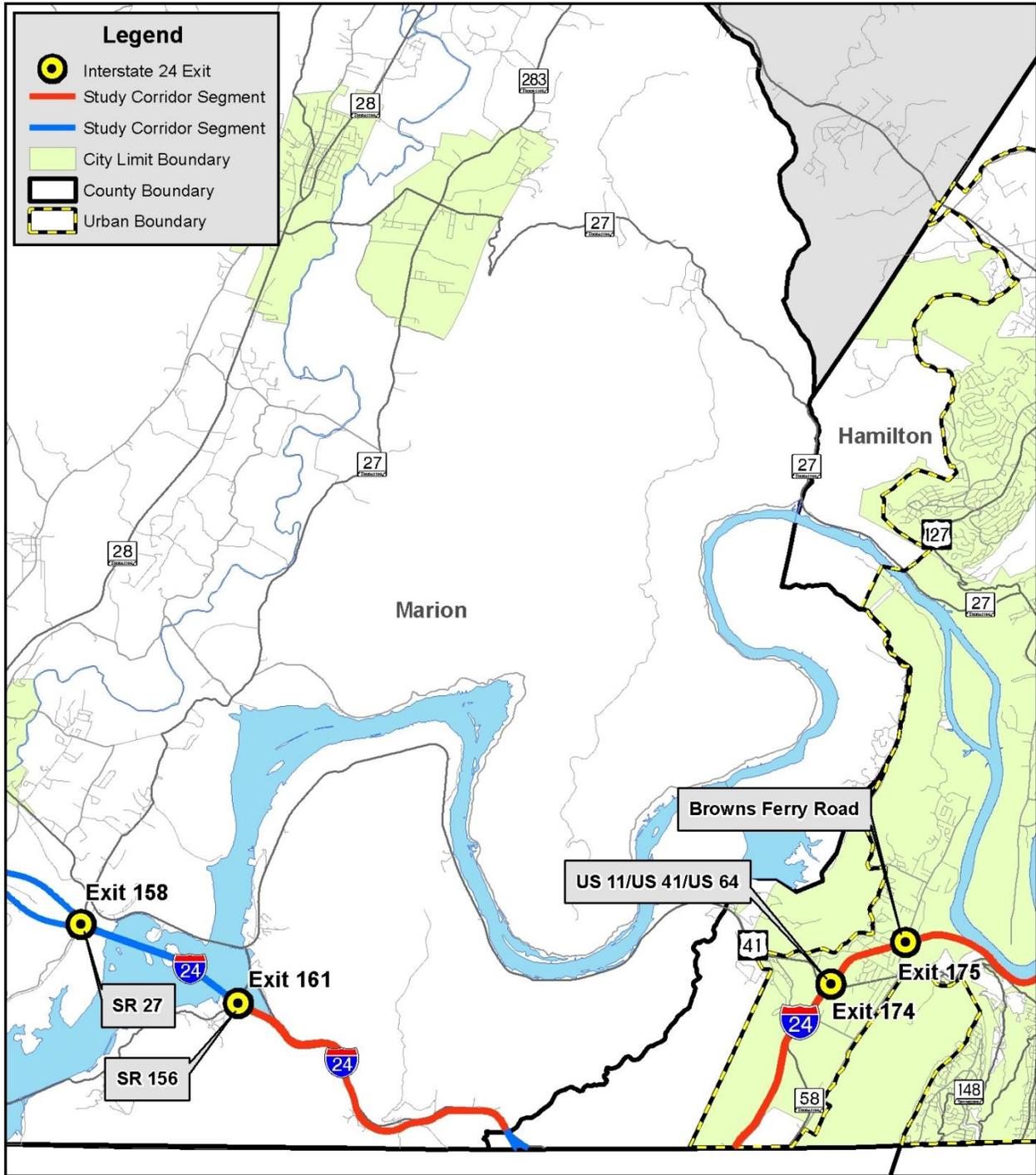
**Interstate 24 Exits
Coffee, Grundy, and Marion Counties**

I-24 MULTIMODAL CORRIDOR STUDY



**Interstate 24 Exits
Marion County**

I-24 MULTIMODAL CORRIDOR STUDY



**Interstate 24 Exits
Marion and Hamilton Counties**

I-24 MULTIMODAL CORRIDOR STUDY



**Interstate 24 Exits
Hamilton County**

I-24 MULTIMODAL CORRIDOR STUDY



**Interstate 24 Exits
Hamilton County**

I-24 MULTIMODAL CORRIDOR STUDY